

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau(43) International Publication Date  
31 December 2003 (31.12.2003)

PCT

(10) International Publication Number  
**WO 2004/002147 A1**(51) International Patent Classification<sup>7</sup>: **H04N 7/01,**  
H04J 3/07, H04N 5/46(21) International Application Number:  
PCT/IB2003/002954

(22) International Filing Date: 13 June 2003 (13.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
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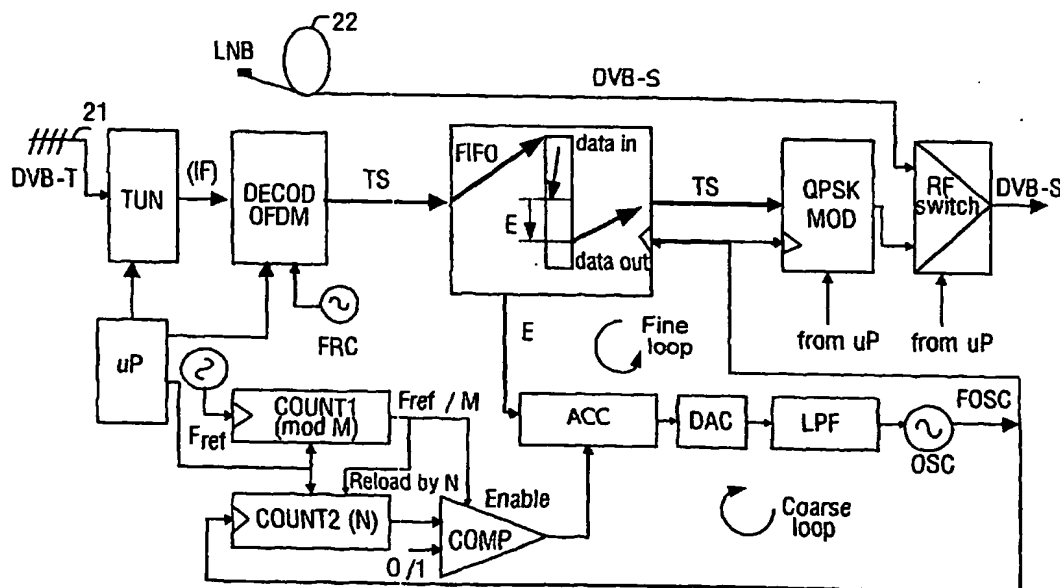
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(FR).(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,  
SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US,  
UZ, VC, VN, YU, ZA, ZM, ZW.(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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(54) Title: CLOCK RECOVERY FOR A DVB-T TO DVB-S TRANSMODULATOR



(57) Abstract: The invention relates to a clock recovery system for a transmodulator allowing reception of a COFDM/DVB-T video signal encoded in the Terrestrial Digital Video Broadcasting format (DVB-T), via a terrestrial antenna and via a DVB-S like receiver suited to receive a QPSK/DVB-S video signal encoded in the Satellite Digital Video Broadcasting format (DVB-S),

## INTERNATIONAL SEARCH REPORT

Internat. Application No.

PCT/IB 02954

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04N7/01 H04J3/07 H04N5/46

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04N H04J G06F H03L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 91 12678 A (SIEMENS AG) 22 August 1991 (1991-08-22)	4,6
A	page 1, line 1 -page 3, line 9 page 4, line 32 -page 8, line 34	1-3,5
A	US 5 731 770 A (MINODA HIDENORI) 24 March 1998 (1998-03-24) page 1, line 4 -page 3, line 14; claim 1	1-6
P,A	WO 02 096098 A (CATREVAUX ALAIN ;NOVO S A A (FR)) 28 November 2002 (2002-11-28) page 1, line 3 -page 7, line 16 page 15, line 7 -page 17, line 12	1-6



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

13 October 2003

Date of mailing of the international search report

27/10/2003

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## INTERNATIONAL SEARCH REPORT

Inter

Application No

PCT/1

/02954

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 9112678	A	22-08-1991	AT	110205 T	15-09-1994
			AU	642948 B2	04-11-1993
			AU	6917091 A	03-09-1991
			BR	9007998 A	27-10-1992
			CA	2076039 A1	17-08-1991
			DE	59006856 D1	22-09-1994
			DK	515376 T3	14-11-1994
			WO	9112678 A1	22-08-1991
			EP	0515376 A1	02-12-1992
			ES	2060351 T3	16-11-1994
			FI	923638 A	14-08-1992
			JP	5504240 T	01-07-1993
			NO	923190 A	14-08-1992
			US	5426672 A	20-06-1995
<hr/>					
US 5731770	A	24-03-1998	JP	3037582 B2	24-04-2000
			JP	8287600 A	01-11-1996
<hr/>					
WO 02096098	A	28-11-2002	FR	2825221 A1	29-11-2002
			WO	02096098 A1	28-11-2002